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NRO REVIEW COMPLETED

[redacted]

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19 September 1963

MEMORANDUM FOR THE RECORD

SUBJECT: "M" System

i. Following are excerpts from a telephone conversation
between the undersigned, [redacted]
[redacted] this date, reference [redacted] (OUT 20293):

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"First, general philosophy. We look upon this improvement program as one that doesn't actually solve our problem. It increases peak performance but does nothing to decrease the spread of probability of obtaining peak performance a greater percentage of the time.

Second, we feel that the degradation caused by the list of items suggested at the present doesn't contribute a significant error percentage of the over-all performance. Therefore, we feel that possibly the money could better be used in another direction. Example, we think perhaps it should be used on the "dash two" (M-2).

We also feel that the addition of numerous improvements, such as is proposed, could possibly degrade system reliability by introducing additional areas that could malfunction. This is our general philosophy. Let us take each item specifically:

Reference Item A: According to our calculations Item A contributes insignificant errors at the present time. Therefore we do not think it is economically wise to go this route.

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Reference Item B: We go along with this.

Reference Item C: Here again we do not think this really contributes any significant percent of error in the system. We wonder whether this may complicate the over-all system reliability and in view of its not contributing any great error whether it is worth-while.

Reference Item D: According to our calculations this does contribute a significant area and we can go along with that.

Reference Item E: We do not think that here again we have an error that is worth the system complexity.

Reference Item F: We would go along with the experiments if they are particularly aimed at trying to solve atmospheric problems, but we are afraid that this might complicate the system and decrease the reliability. Let's not go along with this one at the present time.

Reference Item G: We feel the same as we do regarding Item F.

Reference Item H: We go along with as a generally good idea. I would assume this really doesn't have anything to do with the program.

Reference Item I: What we meant to say there is that, yes, we should investigate this but here again we do not want to decrease reliability of any given mission in order to achieve this.

What Dr. Wheelon wants to do is to vote for a thirty day delay across the board. He wants to shelf it for thirty days and re-investigate whether we are on the right track. In summary, we feel that this proposed improvement program, the Purcell Panel recommendations, and the real requirements are all inconsistent with each other and more study is indicated."

2. The above telephone conversation was taped and can be made available at your request.

(1) (b) (1) (i) (ii) (iii) (iv) (v) (vi) (vii) (viii) (ix)

JACK C. LEDFORD
Colonel USAF

Assistant Director
(Special Activities)

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ITEMS A THRU I

ITEM A: Utilization fo a superior optical glass for the lenses.

ITEM B: Adjustment of the camera to peak focus (after completing confidence check of thermal control measures newly incorporated in the camera).

ITEM C: Testing for IMC errors. A Mauer IMC Sensor (developed for an airc. aft program) will be installed on an early NRC Agena vehicle to record, more accurately than we have been able to do before, the image motion parameters (roll, pitch, yaw) during a CORONA mission.

ITEM D: Incorporation of a Crab Control (yaw steering).

ITEM F: Conduct flight exposure experiments.

ITEM G: Design of an exposure control system.

ITEM H: Consideration of programmer improvements. By going to a more flexible programmer (Fairchild Type IX) with more options, including the capability to make changes in the program during orbit, a more effective use of the mission could be realized and less film could be expended over areas of poor visibility or marginal weather.

ITEM I: Evaluation of the feasibility of going to a lower, circular orbit. Present variations in altitude (100 to 140 NM) are one of the basic causes of the variations in resolution that have occurred from one pass or one part of a pass to another. By dropping the orbit down to about 100 miles and by making it essentially circular, we can optimize and make more constant the resolution performance of the system. This technique has recently been made possible by the increased accuracy of injection into orbit that has resulted from moving the BTL Guidance System from the Thor to the Agena.